
ADSC/WSDOT Team Members

June 6th, 2007

Members In Attendance

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The meeting began at 8:30 AM. Also in attendance from WSDOT were Don Williams, David Jenkins, Mark Frye, Amy Leland, and Janet Buoy. Attending from the Washington State Ferries branch of WSDOT were Roger Wilson and Tom Bertucci.

1. Constructability Review

I-5 Boston to Shelby Noise Wall

Janet Buoy provided a hand-out and described some of the challenges associated with this project. There is an existing retaining wall founded on a spread footing that runs along the alignment of the proposed noise wall. The spread footing of the existing wall is inadequate to support the new noise wall. The preliminary plan is to install small diameter drilled shafts through the existing retaining wall footing. Preliminarily, the face of the new shafts will be about 6" clear from the face of the existing wall. Additional constraints include an existing 1920's 20" diameter waterline nearby, protection of the existing concrete pavement, and exceptional trees along Boylston Ave.

The ADSC Members expressed concern about the tight work zone. During daylight hours, there would only be a 16 foot wide work zone in front of the wall. It may be possible to take an additional lane at night. One ADSC Member suggested exposing the top of the footing prior to beginning work. However, this would expose the existing waterline. Patrick asked if it would be possible to relocate the waterline. Janet stated that this would be very expensive and introduce additional challenges. Several Task Force Members suggested the use of battered micropiles rather than vertical drilled shafts. Another suggestion was to provide alternative designs as part of the bid package.

Alan expressed concern that DMI was exclusively contacted as part of the “Expert Review Panel”. He asked that all future drilled shaft review be handled through the ADSC/WSDOT Task Force.

Action Plan:

- Alan to provide formal written comments to Mo within 10 days.

Mukilteo Ferry Terminal

Washington State Ferries is in the planning phase for major revisions to the Mukilteo Ferry Terminal. In item of work is to construct a bulkhead wall using 6’-0” diameter tangent piles. Prior to this meeting, the Task Force Members were provided with boring logs and a conceptual layout of the proposed wall.

The ADSC recommended that casing be installed to the bottom of the SP sands as a minimum. It may be possible to support the SM sands using slurry. Al Rasband noted that it may be challenging to use the oscillator for this project. Oscillator use would require reaction piles, and considering the soil profile, the reaction piles would be substantial. Tom Bertucci mentioned that it may be possible to place fill in this area prior to shaft installation.

Alan Macnab noted that the submitted documentation indicates that hazardous material may be a concern. Roger doesn’t expect to encounter hazardous material, however the contract will be set up to pay for disposal of contaminated soil should it be encountered.

Another phase of this work is installing drilled shafts to support the transfer span and overhead loading ramp. WSF is considering shaft diameters in the range of 7’-0” to 9’-0”. These shafts are installed in deep water.

Alan M. recommended installing permanent casing to the glacial till layer. The cost of removing the casing would exceed the salvage value of the casing. He also suggested staying away from any sort of large marine hammer for installation of shaft casings or temporary trestle piles. These hammers produce a tremendous amount of noise, and have resulted in fish kills in the past. Mo suggested that any pile driving in the marine environment should include provisions for vibration monitoring.

Action Plan:

- Alan to provide formal written comments to Mo within 10 days.

Camas Slough Bridge

This project constructs a new, parallel bridge structure alongside an existing 1960’s bridge in the Vancouver, WA area. The original structure is a six-span bridge and the new structure will be three spans. The Bridge and Geotechnical Offices are currently looking at using single 10’-0” diameter drilled shafts at each of the two intermediate piers. These shafts will be socketed two shaft diameters into the bedrock. Due to railroad issues, there will only be land access to one of the intermediate piers. Access to the other intermediate pier will likely be by barge.

David Jenkins summarized the rock characteristics at this location. The borings that have been performed show between 2.5 and 16.4 ksi unconfined compressive strength. ADSC asked if the rock will fracture. David stated that he believes it will fracture. Although the highest strength encountered was 16.4 ksi, the average unconfined compressive strength was 9 ksi. Considering this, Alan M. suggested a good estimate of production rate would be 4"/hour for drilling in the bedrock. One Task Force Member suggested using a smaller diameter shaft for the rock socket. A similar thing was done on the Hood canal Bridge project. Patrick Clarke suggested looking closely at retrofit options for widening the existing structure rather than constructing an entirely new bridge.

David mentioned that WSDOT will be taking an additional geotechnical boring from the site. He asked for input from ADSC on what to look for. Alan M. asked that Geotech look at bedding planes and unconfined shear strength. Considering the challenges with shaft construction, Alan thought that it would be difficult to get all the in-water work accomplished in two months. This may require around-the-clock work.

Action Plan:

- Alan to provide formal written comments to Mo within 10 days.

I-5 Grand Mound to Maytown

Included in this project are three new crossings over I-5 in south Thurston County; Prairie Creek, Scatter Creek, and Maytown. Prairie Creek and Scatter Creek are both single-span bridges with three to four foot diameter drilled shafts at the abutments. Maytown is a three-span bridge that will likely use 8'-0" diameter shafts at the intermediate piers and 4'-0" diameter shafts at the abutments. This project has an Ad date in October or November of this year.

In general, the ADSC Members agreed with the temporary casing elevations. There was discussion on the Maytown structure. The geotechnical borings identified artesian pressures at this location. WSDOT will specify that dewatering be used for construction of the Maytown shafts. It was also pointed out that the Pier 4 borings identified loose sand layers. WSDOT intends to require temporary casing through the loose sands.

Action Plan:

- Alan to provide formal written comments to Mo within 10 days.

2. Review/Approval of March 8, 2007 Meeting Minutes

During a constructability review of the SR 518 project, it was discussed that an oscillator was being specified for this project. Alan M. had asked for justification why the oscillator was being required. Mo agreed to look in to this and report at the September meeting.

Action Plan:

- Mo to get justification for requiring oscillator on the SR 518 project.

3. Action Item Reports

i. Revisions to Shotcrete Curing

On all future contracts, WSDOT intends to require two coats of curing compound for temporary shotcrete work, and a wet cure for permanent shotcrete. Mo checked with ACI and found that our direction is consistent with the rest of the industry.

One ADSC Member mentioned the benefits of deleting the construction joints in the shotcrete when constructing a soil nail wall. The requirement to provide these joints doesn't seem to have structural merit. WSDOT recently allowed these joints to be deleted on the UW Bothell soil nail wall project.

Action Plan:

- Mark G will discuss with Bridge to encourage elimination of the joints on future soil nail wall projects.

ii. Soldier Pile Wall Lagging Design Criteria

This agenda item will be discussed under Item vi.

Action Plan:

- No action needed.

iii. Use of Saltwater in Slurries

Because John Tuttle isn't present, this agenda item will be deferred to the next meeting.

Action Plan:

- Mo to include on the agenda for the next meeting.

iv. Overnight Protection of Shafts

There was uncertainty as to why this was included on the agenda. Mo recalled that the issue was in determining what constitutes a work stoppage under Section 3.03 of the Special Provision. The revisions to Section 3.03 will be discussed later in the meeting.

Action Plan:

- No action needed.

v. Concentric PGA Strands

There has been some discussion over interpretation of the alignment requirements between the tendon and bearing plate for permanent ground anchors. Some clarifying language has been added to Section 6-17.3(7) of the Standard Specifications. The Task Force Members had no concerns about this addition.

Action Plan:

- No action needed.

vi. Soldier Pile Lagging Specification Draft

Mike Bauer handed out a copy of the revised specifications and provided a brief description. This Specification has been completely rewritten to allow Contractors greater leeway when lagging is used as temporary shoring. Such a major specification change warrants a close review by the Task Force Members. The ADSC Members agreed to provide written comments on this revised specification to WSDOT within ten days. This will also be discussed at the next meeting.

Action Plan:

- Alan to provide written comments to WSDOT within ten days.
- Mo to include on agenda for the next meeting.

vii. Proposed Changes to Section 3.03

Al R. read some proposed language for changes to Section 3.03. Mo will reproduce this and email it to the team for review. This will be discussed further at the next meeting.

Action Plan:

- Mo to provide email of comments to ADSC, and include on agenda for next meeting

viii. Permitting for Test Shafts in Artesian Conditions

Al R. presented a concern he has with coordination during dewatering that is sometimes necessary for shaft construction. He pointed out that dewatering requires permitting from the Department of Ecology (DOE) and others, and often has specific constraints related to driller qualification, well decommissioning, etc. WSDOT Geotech explained that our contracts require dewatering to be performed in accordance with DOE policies. Because WSDOT doesn't know what the Contractor's dewatering plan will look like, we can't obtain the permits. WSDOT does normally obtain a discharge permit.

Mo asked if the DOE could refuse to issue a permit. The general consensus amongst the group was that this wouldn't happen. Mo also asked who was responsible for evaluating dewatering during design. This evaluation is performed by Geotech, and they provide a recommendation to the Civil PE for inclusion in the contract.

Action Plan:

- No action needed.

ix. Shaft Contractors' Prequalification Class

The ADSC Members have asked WSDOT to investigate setting up a separate Prequalification Class for drilled shaft contractors. Mo has been working on this, and passed out some proposed language that could be used to provide such a prequalification. Mo pointed out that this would only be used when shafts make up 30% or more of a project.

Alan suggested revising the language to indicate “similar” sizes of shafts rather than “equal” sizes. Mo agreed, and he will make this revision and send out for review.

Alan asked if WSDOT has received the drilled shaft submittal for the Fredonia Test Shaft project. He reiterated that he would like a copy of it when it arrives. Mo stated that he would send it to Alan when he receives it.

Action Plan:

- Mo to make revisions to shaft contractor prequalification language. Include on agenda for next meeting.
- Mo to send copy of drilled shaft submittal for Fredonia Test Shaft project to Alan.

4. Shaft Concrete Vibration Zone Clarification

The current specification requires that the top five feet of the drilled shaft be vibrated. This is appropriate for drilled shafts without column connection transition zones. However, where there is a transition zone, the entire zone should be vibrated. This is necessary to insure consolidation of the concrete both around the drilled shaft reinforcing as well as the tightly-space column reinforcing steel. The ADSC Members had no objection, and Mike B. agreed to make this revision to the Special Provision.

Action Plan:

- Mike to make revisions to the Special Provisions to vibrate the full height of the column transition zones.

5. Review of the Vibration Specifications

This item wasn't discussed. If there is still an interest in this item, it will be included on the agenda for the next meeting.

Action Plan:

- Mo to include on agenda for next meeting if still warranted.

6. Future Meeting Dates

The Task Force set up the following future meeting dates:

- September 13th
- October 25th
- November 29th

Action Plan:

- No action needed.